HOUSE OF COMMONS SESSION 1999–2000

AGRICULTURE COMMITTEE

Third Report

THE SEGREGATION OF GENETICALLY MODIFIED FOODS

Volume I

Report and Proceedings of the Committee

Ordered by The House of Commons *to be printed*
28 February 2000

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The Agriculture Committee is appointed to examine on behalf of the House of Commons the expenditure, administration and policy of the Ministry of Agriculture, Fisheries and Food (and any associated public bodies). Its constitution and powers are set out in House of Commons Standing Order No. 152.

The Committee has a maximum of eleven members, of whom the quorum for any formal proceedings is three. The members of the Committee are appointed by the House and unless discharged remain on the Committee until the next dissolution of Parliament. The present membership of the Committee is as follows:

Mr David Borrow (*Labour, South Ribble*)
Mr David Curry (*Conservative, Skipton*)
Mr David Drew (*Labour, Stroud*)
Mr Alan Hurst (*Labour, Braintree*)
Mr Michael Jack (*Conservative, Fylde*)
Ms Fiona Jones (*Labour, Newark*)
Mr Paul Marsden (*Labour, Shrewsbury and Atcham*)
Mr Austin Mitchell (*Labour, Great Grimsby*)
Mr Lembit Öpik (*Liberal Democrat, Montgomeryshire*)
Mr Owen Paterson (*Conservative, North Shropshire*)
Mr Mark Todd (*Labour, South Derbyshire*)

On 15 February 2000, the Committee elected *Mr David Curry* as its Chairman.[1]

The Committee has the power to require the submission of written evidence and documents, to examine witnesses, and to make Reports to the House. In the footnotes to this Report, references to oral evidence are indicated by 'Q' followed by the question number, references to the written evidence are indicated by 'Ev' followed by a page number.

The Committee may meet at any time (except when Parliament is prorogued or dissolved) and at any place within the United Kingdom. The Committee may meet concurrently with other committees or sub-committees established under Standing Order No. 152 and with the House's European Scrutiny Committee (or any of its sub-committees) and Environmental Audit Committee for the purpose of deliberating, taking evidence or considering draft reports. The Committee may exchange documents and evidence with any of these committees, as well as with the House's Public Accounts and Deregulation Committees.

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the internet at www.parliament.uk/commons/selcom/agrihome.htm. A list of Reports of the Committee in the present Parliament is at the end of this volume.

All correspondence should be addressed to the Clerk of the Agriculture Committee, Committee Office, 7 Millbank, London SW1P 3JA. The telephone number for general inquiries is 020 7219 3262; the Committee's e-mail address is: agricom@parliament.uk.

[1] On 16 July 1997, the Committee elected *Mr Peter Luff* as its Chairman. He was discharged on February 2000.

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THIRD REPORT

The Agriculture Committee has agreed to the following Report:—

THE SEGREGATION OF GENETICALLY MODIFIED FOODS

I. INTRODUCTION

1. The principal theme of this Report is choice. It is not about the merits or otherwise of genetically modified foods. Our primary concern is how to ensure that consumers and farmers alike can make informed choices on whether to make use of GM technology. This objective has not been well served to date by the confusion and hysterics which genetic modification has engendered in the United Kingdom. The first consumer product to reach the shops was a tomato paste, launched with a proper education campaign, rewarded with satisfactory sales but withdrawn in the wake of panic whipped up by campaigns against "Frankenstein foods". The supermarket chains responded with radical action to root out genetically modified ingredients in order to reassure and thereby keep their customers. Few organisations emerged from this situation with much credit, not excepting the Government, which was at first supportive of genetically modified foods but then was forced into reviewing both attitudes and statutory approval procedures in the face of the public and media panic. **We believe that it is vital that this confusion is now replaced by rational debate and education in order that the market can serve those who actively choose to grow or consume genetically modified foods as well as those who choose not to do so.**

2. The question of segregation is central to the ability of the food chain to deliver the products consumers want. To guarantee the genetically modified status of a food, it is essential that GM and non-GM crops are kept separate throughout the process from farm to supermarket. We therefore decided that the segregation of GM foods should be the first in the series of tightly focussed inquiries on issues connected with GMOs which we announced in our Sixth Report of last Session.[2] Our terms of reference covered the means of segregation of genetically modified crops on farms, in storage and in transit, the difficulties involved in ensuring such segregation, and the implications of these issues for the consumer in terms of labelling and traceability.[3] We received over 40 submissions and held four oral evidence sessions with witnesses from the Supply Chain Initiative on Modified Agricultural Crops (SCIMAC), Novartis UK Ltd, Cargill plc, Friends of the Earth, Marks and Spencer plc and the Soil Association, as well as three expert scientists (Dr Philip Dale, Professor Alan Gray and Professor Janet Bainbridge) and Baroness Hayman, Minister of State at the Ministry of Agriculture, Fisheries and Food (MAFF). We thank all who contributed to this inquiry.

3. At the moment, there are no GM crops grown for commercial sale in the UK. Under the terms of an agreement between the Government and SCIMAC, this will remain the case until 2002 when the current programme of farm-scale trials is completed and the results evaluated.[4] Three crops are being tested during these trials – herbicide-tolerant oilseed rape, fodder maize and fodder beet – in some 20-25 fields a year.[5] Segregation of GM crops, therefore, is currently an issue limited to this small number of test sites, although any guidelines established now will have wider application if commercial plantings are subsequently allowed. Further down the food chain, the implication of GM crops for the consumer is already a live issue owing to the predominance of GM varieties of soya and maize in the United States and the widespread use of US-sourced crops in products sold on the UK market. Of the three GM foods and ingredients available here, soya and maize are commonly found in processed foods, whilst we have already referred to the fate of tomato paste made from GM tomatoes. It follows that in examining the segregation of GM foods, it is necessary to take account of the American experience, both in terms of the current position with regard to imported foodstuffs and in terms of lessons for the future development of GM and non-GM food chains within the UK.

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[2] Sixth Report from the Agriculture Committee, Session 1998-99, *Genetically Modified Organisms,* (HC 427), para 3.
[3] Press notice No. 23, Session 1998-99, 30 July 1999.
[4] Ev. p. 175.
[5] *Ibid.*

4. It is clear that there is no current consensus on the principles or the precise definitions of segregation at any point in the food chain. Above all, customers deserve quality information and genuine choice. So far, a framework for this has not been established. While it is right that the main burden for this lies with the industries concerned, there remains a critical role for government at UK, EU and international level. These principles are crucial: transparency; inclusiveness; a duty to explain; and choice. **These are the principles which have driven our recommendations and we commend them to the Government.**

Definition of terms

Genetic modification

5. Genetic modification involves the use of technology to add, subtract, alter or exchange one or more genes in a living organism in order to obtain characteristics not previously available. Supporters of the process often stress its similarity to the age-old practice of cross-breeding, while opponents regard it as radically different. In the case of crops, the potential of the technology lies in the ability of scientists to produce seed which furnishes advantages to farmers in terms of growth properties and to consumers in terms of taste, added benefits and keeping qualities.

Segregation and Identity Preservation (IP)

6. Early in this inquiry, we were taken to task by several witnesses for our use of the term 'segregation'. Companies with experience of the US market and the system for bringing crops from the field to the consumer all stressed that "using the terminology 'identity preservation' [IP] seems more useful".[6] PG Economics explained that "both segregation and IP essentially refer to any system of crop or raw material management that segregates or preserves the identity of the source or nature of the materials. At a general level segregation is synonymous with 'keeping crops, products etc apart' whilst IP is more widely considered to apply where there is a positive desire to preserve the identity or source of a crop or product".[7] This distinction was supported by the American Soybean Association[8] and Cargill plc[9] who both underlined the central importance of the end-user in an IP system. The Vice-President, Public Affairs, of Cargill plc also pointed out that "identity preservation does imply traceability, which segregation does not".[10] The key difference is that identity preservation, traditionally applied to high-value crops, ensures that a particular crop is monitored throughout the food chain to ensure its 'genetic integrity'[11] and thus guarantee the quality which commands a premium, whilst segregation, albeit "a fundamental component" of IP,[12] merely separates one batch or crop from another.

7. Ms Rawling of Cargill plc assured us that "people can get too hung up on words"[13] but it is clear that there is a very important distinction to be made here in talking about the supply chain. In this case, segregation matters if the end-user – the consumer – wishes to be certain of the nature of a particular product. Marks and Spencer plc explained that "Consumers are demanding new levels of traceability to give assurances of food safety to which food retailers and manufacturers are responding", and that "there is an increasing tendency to require independent auditing and verification of effective segregation to provide transparency in support of claims".[14] At the moment, it is likely to be non-GM crops which are identity-preserved as this will be the only way of separating them from the system which delivers commodity crops to the market. In future, it may be that some GM crops will require this degree of preservation, where their added characteristics enhance their value to the consumer.[15] Where crops on farms are

[6] Ev. p. 26.
[7] Ev. p. 127.
[8] Ev. p. 152.
[9] Ev. p. 26.
[10] Q 146.
[11] Q 79.
[12] Q 84.
[13] Q 146.
[14] Ev. p. 57.
[15] Ev. pp. 125, 137.

concerned, however, segregation may have a different purpose. The NFU argued that, in addition to the consumer- and price-led reasons for keeping certain crops apart, "a crop could be grown that would be hazardous if the products of it were eaten by humans or livestock".[16] Here, segregation is necessary to prevent cross-contamination. This is the sense in which the term is generally used in the context of the field trials and of future commercial plantings in this country and although we are mindful of the implication that GM crops are thereby treated as harmful, we find the term useful and employ it in this narrow sense in our Report.

GM-free and non-GM

8. The purpose of segregation is to allow the identification of foodstuffs as either derived from GM crops or not. There is some confusion as to the terminology which should be applied to the latter category. Several witnesses pointed to the "widespread reference to 'GM-free' by the press, influence groups, consumers and even some retailers"[17] and argued that the use of 'GM-free' was "misleading".[18] There are several reasons why this is the case. First, we heard consistent accounts from witnesses that it was impossible to achieve 100% GM-free or "absolute purity".[19] This assessment arises from the acknowledgement that the seeds from which crops are grown are not 100% pure,[20] with the accepted level for certified seed being around 99.7%, depending on the crop.[21] This gives scope for a tiny percentage of GM material in even the most stringently monitored crops, a situation made more probable by the percentage of GM crops now in the open agricultural chain.[22] Secondly, there is the question of measuring the GM content of a food.[23] The analysis is only as reliable as the test and at the moment it would appear that results cannot be 100% accurate.[24] Thirdly, we were reminded that "the whole emphasis of policy development in Brussels has been to provide a workable distinction between GM (labelled) and conventional (unlabelled) supplies, with products labelled GM-free providing a potential third category".[25] Where reference is made to regulatory activity, it is therefore incorrect to oppose 'GM' with 'GM-free', rather than 'non-GM'.

9. When we put the great potential for confusion on this issue to Baroness Hayman, she agreed that consumers do not understand the difference between GM-free and non-GM.[26] She argued, rightly in our view, that "you have to have a definition that is testable and a definition that is universally accepted".[27] Her first point leads to acknowledgement that GM-free cannot be guaranteed and therefore thresholds for tolerance of accidental 'contamination' must be established. However, her second point, whilst correct in terms of agreements within the food chain, is likely to be harder to achieve where consumers are concerned. The Soil Association argued that "most consumers believe it is their right to remain GM free".[28] We recognise that consumers who wish to avoid GM foods believe the alternative is GM-free and would find it hard to accept the scientific explanations why this claim is so difficult to verify and so should not be made. Nevertheless, **we accept the distinction which has to be made between 'non-GM' and 'GM-free'. There is not yet a satisfactory definition of GM-free but once it has been agreed, we expect it to be enforced.**

[16] Ev. p. 24.
[17] Ev. p. 3.
[18] Q 333.
[19] Qq 332-3; see also Q 86; Q 162.
[20] Q 159.
[21] Q 223. Certified seed is high genetic purity seed produced by seed companies to statutory requirements and sold to farmers.
[22] Q 332.
[23] Ev. p. 118.
[24] Ev. pp. 5-6.
[25] Ev. p. 8.
[26] Q 501.
[27] Q 504.
[28] Q 378.

II. SEGREGATION IN THE FOOD CHAIN

On the farm

10. GM and non-GM crops may become mixed on farms in several ways. Dr Philip Dale of the John Innes Research Centre listed four potential sources of mixing: the degree of impurity of the certified seed used to establish the crop; mixing with GM volunteer plants already present in the soil; mixing with seeds present in sowing, harvesting and storage equipment; and cross-pollination with adjacent GM crops.[29] The risk can be minimised by good agricultural practices which ensure that the crops are handled separately. Identity preservation systems are already in place in the US to deal with conventional crops on farms, paying farmers a premium to maintain the purity of waxy maize, for example.[30] In the UK, procedures for growing GM crops are set out in the SCIMAC Code of Practice on the Introduction of Genetically Modified Crops.[31] The Code is designed to provide "a consistent, industry-wide framework for identity preservation up to and including despatch of the harvested crop from the farm",[32] drawing on "management practices within the certified seed production sector which in more than 30 years of operation in UK agriculture has consistently delivered levels of varietal purity and identity in excess of 99.5 per cent".[33] The SCIMAC guidelines are currently in use in managing the field trials of GM crops but in time they will apply also to commercial plantings. The Government is firmly in favour of the initiative, endorsing the use of the Code and exploring with the European Commission how it could be incorporated into EU legislation.[34] The credibility of the guidelines in ensuring segregation of GM crops on farms is therefore a matter of some importance. Supporters included Novartis, who told us that from an international perspective, "SCIMAC is being viewed as one of the more established and credible organisations".[35] Some witnesses, however, raised doubts which touch upon the key issues involved in segregation on the farm: separation distances, practicalities, notification, relations with the organic sector and transparency. We will examine each of these in turn.

Separation distances

11. The most contentious issue is that of the distances needed between crops to reduce the risk of cross-pollination. The separation distances operated by SCIMAC are set out in the table below.

SCIMAC separation distances

Crop type	Certified seed crops (same species)	Registered organic crops (same species)	Non-GM crops (same species)
Oilseed rape	200 m	200 m	50 m
Sugar beet	600 m	600 m	6 m
Fodder beet	600 m	600 m	6 m
Forage maize	200 m	200 m	200 m (sweetcorn) 50 m (forage maize)

Source: SCIMAC, *Guidelines for growing newly developed herbicide tolerant crops*, May 1999.

[29] Ev. p. 37.
[30] Ev. p. 28.
[31] SCIMAC is "a formal UK grouping of industry organisations representing farmers, plant breeders, the seed trade and biotechnology companies"(Ev. p. 1). Its membership consists of the National Farmers' Union, the British Society of Plant Breeders, British Agrochemicals Association, United Kingdom Agricultural Supply Trade Association and British Sugar Beet Seed Producers Association.
[32] Ev. p. 1.
[33] Ev. p. 166.
[34] Ev. p. 94.
[35] Q 92.

These distances have been subject to much criticism from environmentalists as inadequate to prevent pollination either by air-borne methods or particularly by insects.[36] Research commissioned by the Soil Association from the National Pollen Research Institute suggested that the risk of the former had been underestimated, while other studies have shown that "bees will regularly travel three miles to find sources of nectar and pollen if good sources are not available closer".[37] The Soil Association concluded from this data that "a six mile separation distance for related species would generally be necessary".[38]

12. We took evidence from two expert scientists on this issue. Professor Alan Gray of the Institute of Terrestrial Ecology stressed that "the ability to segregate the crop by physical separation varies considerably from crop to crop".[39] Between crop species, the decisive factors include the method of pollination and the existence of wild relatives. Even within any particular crop species, "there is known to be enormous variation in the levels of gene flow" which makes it difficult to predict.[40] Moreover, "there is a clear difference between the pollen travelling and it making an effective cross-pollination".[41] Dr Dale added that "many of the cereals will self-pollinate preferentially, so you get very little cross-pollination".[42] Both witnesses agreed that any guidelines should be based on past experience with certified seed production, using the established procedures as a 'baseline'.[43] Professor Gray, acting Chairman of ACRE which decides all applications to release genetically modified materials on a case by case basis,[44] advised that, owing to the variation in gene flow shown by so many studies, his committee based separation distances on what "on average *actually* happens".[45]

13. The scientists also advised us that to ensure total genetic purity would require segregation far in excess of what is practical, that is "regional separation of GM and non-GM crops".[46] The question therefore turns on the issue of tolerances, and we were reassured by all the evidence we received on the ability of the seed industry to guarantee such high levels of purity. Nevertheless, we note the conclusions of an overview of research into pollination produced by the National Pollen Research Unit in Worcester during the course of our inquiry which suggests that the SCIMAC advice on separation distances may need adapting. For example, on oil seed rape, "pollen dispersal has been recorded at up to 4km by insects (some 20 fold higher than the recommended isolation distances), and to 3km by the air flow".[47] When we put this conclusion to Baroness Hayman, she reminded us that "while pollen can travel several kilometres, the issue is the likelihood of cross-pollination and that reduces very much over distance".[48] However, she also agreed that "we need to look at whether we need to develop those separation distances".[49] This is being taken forward in conjunction with representatives of the organic sector and of SCIMAC, whose guidelines state that "separation distances are based on current regulation, established practice ... and best scientific knowledge and may be subject to review".[50] We believe that separation distances for GM crops must be based on the best available scientific research matched to best agricultural management techniques. We are pleased that the Minister accepts that the Government may not "necessarily have got it 100 per cent right now"[51] and **we recommend that the Government ensure that the separation distances set out in the SCIMAC guidelines be reviewed if there is clear evidence of cross-pollination taking place within the existing guidelines and any necessary revisions**

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[36] e.g. Friends of the Earth, Q 297.
[37] Ev. p. 70.
[38] Ev. p. 70.
[39] Ev. p.38.
[40] *Ibid.*
[41] Q 218.
[42] Q 211.
[43] Qq 236, 237.
[44] Q 193.
[45] Q 221; witness's emphasis.
[46] Ev. p. 37; see also Ev. p. 38.
[47] *Pollen dispersal in the crops Maize, Oil seed rape, Potatoes, Sugar beet and Wheat*, National Pollen Research Unit, University College, Worcester, January 2000, p. 2.
[48] Q 530.
[49] *Ibid.*
[50] SCIMAC, *Guidelines for growing newly developed herbicide tolerant crops*, May 1999, p. 6.
[51] Q 531.

implemented in the next round of field trials. If such a review becomes necessary, we would expect all interested parties to be represented on it.

Practicalities

14. The SCIMAC guidelines include "specific practical measures to safeguard the integrity and identity of harvested GM (and non-GM) crops", covering procedures such as storage of seeds, cleaning down seed drills and harvesting machinery, and mechanisms to minimise seed loss at harvest and to prevent spillage into unplanned areas of the farm.[52] The Royal Institution of Chartered Surveyors (RICS) highlighted the difficulties of observing these guidelines, particularly where contractors were used, advising the Committee that "the practicality ... of cleaning seed drills and combines in field situations is highly questionable as is the 'policing' of this if the growing of GM crops become widespread".[53] The RICS believed the only solution would be "a requirement that GM crops can only be sown and harvested and handled using designated machinery".[54] The NFU, a member of SCIMAC, listed all the requirements necessary to ensure full segregation, including cleaning of equipment, and stressed that "not all farmers and growers are presently suitably equipped to carry out these processes".[55] The procedures required by the guidelines would also involve extra costs for the land used in separation distances and labour charges due to the additional care demanded.[56] This is undoubtedly true, although clearly not all farmers will be required to carry out these procedures as we are unlikely to reach a stage where all farmers grow GM and non-GM crops side by side. Where equipment is shared between farmers, it may be easier rather than more difficult to dedicate machinery to either variety of crops.

15. There is good reason for the stringency of the guidelines agreed by SCIMAC and we are not convinced that they are impractical. Once again, we are reassured by the use of similar processes in the production of certified seed. Much will depend upon the monitoring and policing of the guidelines as they are implemented by the farmers themselves. UKASTA, another member of SCIMAC, assured us that "adherence to the guidelines, checked by an external and independent audit of compliance, is mandatory".[57] Failure to comply triggers off a penalty system and ultimately loss of access to GM technology.[58] In addition, of course, one objective of the guidelines is to ensure traceability which makes it very much in the farmer's best interests to ensure that correct procedures are followed. **We therefore conclude that the SCIMAC guidelines are a practical approach to crop-handling procedures on a particular farm.**

Notification and registration

16. Under the SCIMAC guidelines, farmers are required to notify neighbouring farms of their intention to plant specific crops and to reach agreement on planting strategies.[59] Any failure to reach agreement is notified to SCIMAC which then consults with the appropriate representative body, after which continuing disputes have to be "resolved through normal legal channels".[60] For several witnesses, this did not go far enough. Two points in particular were raised. First, the inability of an anti-GM farmer to stop his neighbour growing GM crops near his land. The RICS was concerned that "the lack of any power to veto the growing of GM crops, by neighbouring farmers is likely to cause immense friction in the countryside".[61] We had direct evidence of this in the response generated by one witness who asserted that he had discussed his wish to grow GM crops with six nearby farmers, of whom "four are totally in support ... two are

[52]Ev. p. 2.
[53]Ev. p. 140.
[54]*Ibid.*
[55]Ev. p. 138.
[56]Ev. p. 139.
[57]Ev. p. 135.
[58]*Ibid.*
[59]SCIMAC *Guidelines*, p . 6.
[60]*Ibid.*
[61]Ev. p. 26.

agnostic".[62] Correspondence from the two farmers in question made it very clear that they were not agnostic but firmly against the planting of GM crops at this stage.[63] Secondly, in accordance with its policy on separation distances, the Soil Association believed that the notification zone should be much wider than neighbouring farms, stretching to a six-mile radius of the field,[64] and that the Government should be obliged "to inform the organic certifying bodies of the location of intended trial sites sufficiently in advance".[65]

17. Closely linked to the issue of compulsory notification within a set area around a GM crop is the proposal that the details of all land used for growing GM material should be kept in a public register so that future purchasers would be aware of the land's status. The RICS suggested that this information could be collected through IACS which "has the advantage of being a comprehensive map based system and will reach the majority of those farmers who would be likely to grow GM crops".[66] The register would then be made available to the public, perhaps through the regional service centres. This would be particularly useful for those wishing to purchase land in the vicinity of a GM site. At the moment, the SCIMAC rules prescribe record-keeping on farms with those records maintained for a period of seven years,[67] but there is no requirement to offer access to those records to the public, nor is there a separate permanent register of land use.

18. In addressing these questions, Baroness Hayman emphasized the difference between the field trials and future plantings of crops which have passed regulatory approval procedures.[68] She told us that "I believe it is important that we maintain the transparency of the regulatory system as it is at the moment, which means that we do have to be very clear about where crops are grown on an experimental basis".[69] However, "if a crop has gone through all its regulatory processes, I am not certain what the justification would be for singling out a GM crop rather than any other crop for compulsory notification".[70] She explained that "we have to be careful about assuming that GM crops are completely qualitatively different from anything else and that different rules have to apply in all aspects of the way in which they are handled post introduction, after very careful scrutiny and regulation".[71] Under SCIMAC guidelines, the availability of the records kept by individual farmers to prospective purchasers "would be a matter of negotiation".[72]

19. It is ironic that the Government's openness on the issue of GM crops has enabled protesters to trash several of the field trials. On the other hand, neighbouring farmers and purchasers of land have a clear interest in what is and has been planted in a particular field. We note that the Soil Association "did not say that there should be no GM trial crops within six miles of organic holdings" but that "within six miles we should assess each case according to the risks".[73] This implies that not even the organic movement is asking for an outright veto on what a farmer can plant on his own land. On balance, **we believe that notification should be compulsory, that the notification zone should at least match the separation distances and that SCIMAC must work harder to ensure that the views of neighbouring farmers and other directly interested parties are taken into account in the planting of GM crops.** If the guidelines are put on a statutory footing, the requirement for notification will also become statutory which should give it more force. On the question of a public register, we understand Baroness Hayman's argument that it would be invidious to single out GM crops as uniquely polluting. Obviously, it would be far easier to begin such a register now at the very commencement of the planting of GM crops than to attempt such a task retrospectively, should

[62] Q 36.
[63] Unprinted evidence.
[64] Ev. p. 71.
[65] Ev. p. 71.
[66] Ev. p. 141.
[67] Q 61.
[68] Q 534.
[69] *Ibid.*
[70] *Ibid.*
[71] Q 538.
[72] Ev. p. 113.
[73] Q 380.

scientific research prove the need for one in the future. **However, we believe that we should not give the impression that there is something inherently dangerous about GM crops which warrants rules different from any other circumstance. On balance, we believe that there is a real problem in requiring a register for one category of crops only. Either a product is safe or it is not safe. If it is safe, it should take its place on an equal footing with other crops.**

Relations with the organic sector

20. GM crops pose particular difficulties for the organic sector which operates under EU rules which explicitly 'prohibit' GMOs in organic production.[74] Accidental cross-contamination could have severe implications for a farmer trying to produce organic goods, with the threat of decertification by the organic certifying bodies and consequent loss of income. The Board of the United Kingdom Register of Organic Food Standards (UKROFS) has previously raised its strong concerns about the planting of GM crops in the UK with the Government. Despite reassurances to the contrary, the Board has rejected the idea that "the protocol drawn up by SCIMAC is sufficient to protect organic production".[75] It believes "the presence of GMOs (irreversible incorporation of genetic material into the food chain) is of an entirely different order to accidental environmental contamination by pesticides".[76] However, Dr Dale emphasised that "currently organic farmers (1–2 per cent of UK agriculture) and non-organic farmers accommodate each other by accepting a degree of spray and fertiliser drift, pest and disease transfer, cross-pollination and crop mixing during harvest and handling".[77] His point was that "the adoption of extreme crop isolation procedures such as a 6-mile distance between organic and GM crops will seriously limit the freedom and choice of neighbouring farmers to follow a diversity of farming systems".[78] Therefore, to grant protection to the organic sector would be to deprive the many farmers and consequently consumers who wish to benefit from GM crops.

21. The dispute between the organic and the pro-GM lobbies crystallises the debate over freedom of choice. The Government, which has shown every sign of wishing to encourage both types of farmers, is caught in the middle, although Baroness Hayman was robust in her assertion that "the organic movement has to recognise and find a way of living with adventitious contamination from conventional crops".[79] She went on to explain that the movement also had to accept that "they do not have a veto over other agricultural methods, whether GM or non-GM, just because they are not the methods that they choose to adopt".[80] In fact, MAFF has faciliated a meeting to bring the two sides together in order "to consider how the [SCIMAC] guidelines might be developed to address the issue of detectable GM material being found in organic crops".[81] This includes a review of the need for further research and a fresh look at the separation distances.[82] These measures do not meet all the demands of UKROFS,[83] but they do show a willingness on the part of MAFF to discuss the legitimate concerns of a growing agricultural sector.

22. There have been occasions upon which the organic movement has been guilty of exaggeration on this issue. For instance, the Soil Association wrote of the "negative effect" of GM concerns on the sector's attractiveness to conventional farmers considering conversion.[84] This is patently not the case. Nor has the research commissioned by some in the movement always been presented in a responsible way. Nevertheless, we have been consistent in our support for organic farming and we recognise that their views are sincerely held. The analogy with pesticides is misleading insofar as pesticides were already established within UK

[74] Ev. p. 69.
[75] Ev. p. 147.
[76] *Ibid.*
[77] Ev. p. 165.
[78] *Ibid.*
[79] Q 545.
[80] Q 547.
[81] Q 530.
[82] *Ibid.*
[83] Ev. p. 148.
[84] Ev. p. 71.

agriculture before the rise of the organic sector, whereas GM crops represent a new factor which can be addressed before it has a substantial negative impact. **We welcome the ongoing discussions between SCIMAC and representatives of organic farming as the right approach to this issue. It would be as wrong for an organic farmer to prevent his neighbour growing GM crops as for a farmer planting GM maize to put his neighbour's organic crop, and therefore livelihood, in jeopardy. A *modus vivendi* must be found and written into the guidelines to ensure that the special circumstances of organic farmers are recognised. The two types of farming are equally legal and neither should be subject to discrimination.**

Transparency

23. One difficulty with the guidelines drawn up by SCIMAC is their ownership by the industry. While their foundation on certified seed production attests to their effectiveness, there is a crucial difference in that the need in that industry is to guarantee the purity of seeds for the customer. In the case of GM crops, the need is to persuade those who wish to avoid contact with the segregated material that the procedures are watertight. It is the distinction we made earlier between identity preservation conducted for the benefit of the end-user and segregation which isolates a particular substance for the sake of other products. Clearly, there is a greater need in the second instance for the utmost transparency to reassure sceptics and opponents that the risk of GM material mixing with non-GM is minimal. The credibility of the arrangements may be challenged where the guidelines are drawn up, policed and enforced by pro-GM groups with an active interest in GM crops.

24. Such doubts of the integrity of the guidelines may be unfair but they have to be addressed if the SCIMAC rules are to form the basis of segregation on farms. We recognise that SCIMAC has consulted widely on its code of practice,[85] but this is not sufficient to allay concerns and convey a sense of ownership and trust to organisations naturally wary of GM technology and its effects on food or the environment. We believe that the Government's policy of putting the SCIMAC guidelines on a statutory basis could be very helpful in this regard. SCIMAC itself was doubtful about the move, arguing that "a voluntary initiative is the best footing on which to address this particular issue".[86] Its Secretary believed that once a GM crop had passed its regulatory stages, it was "not an issue of health or safety which should be addressed through regulation but is an issue of observing the commercial interest, the economic interest, of both GM farmers and non-GM farmers".[87] **We believe that the self-regulatory arrangements need to be clearly endorsed by Government so that they have equivalent status to statutorily based guidelines. However, we also consider that such statutory guidelines should only be imposed if they are part of a uniform arrangement across the EU.**

Conclusion on segregation on farms

25. Attitudes towards segregation of GM crops on farms depend upon the perception of risk. Dr Dale told us that "from a scientific perspective, pollination between GM crops and non-GM crops is considered to present no greater risk than pollination between different conventionally bred crops" and he accepted that "for any field grown crops, it is virtually impossible completely to prevent some mixing between GM and non-GM crops".[88] For some people, that risk is intolerable. Whereas SCIMAC reassured us that "the potential contamination is very, very low",[89] the Soil Association believed that "the likelihood of genetic contamination of GM-free crops from GM crops is very high, outside the control of the farmer, and the implications, including economically, are very significant".[90] Taken to its logical conclusion, this results in the view expressed by Friends of the Earth that "we are not at all convinced that we can operate GM farms in the United Kingdom alongside conventional farming".[91] These views are

[85] Ev. pp. 165, 166-7.
[86] Q 42.
[87] *Ibid.*
[88] Ev. p. 165.
[89] Q 50.
[90] Ev. p. 69.
[91] Q 297.

irreconcilable but that does not absolve any of the parties from the responsibility of trying to find a system which will satisfy all reasonable objections. **We believe that the SCIMAC guidelines offer a firm basis on which to build in order to segregate GM and non-GM crops in the UK countryside. We have identified areas where improvements are needed but we conclude that an acceptable level of segregation can be achieved without incurring excessive costs.** We note that in the US, where GM planting is widespread, premiums are now being offered for non-GM crops, and that the trend may be shifting away from farmers preferring GM seeds. In the UK, the extra protection is provided around GM crops, while conventional crops are still seen as the norm so the growing of GM crops under SCIMAC guidelines should not affect the cost of non-GM produce to the consumer.

26. A key issue which remains to be solved is the question of liability. Organic farmers in particular are concerned that farmers should be eligible for legal compensation if they lose their organic status because of pollution.[92] There is also the matter of GM material finding its way into conventional food, leaving farmers open to fines and compensation claims from manufacturers and retailers where GM tolerance levels are inadvertently breached.[93] Efforts to minimize mixing should mean that the risk of this occurring is extremely low but it is an issue which must be addressed. Baroness Hayman advised us that "it may involve legislation at an EU level rather than a United Kingdom level".[94] **We recommend that the Government resolve the issue of legal liability on an EU-wide basis as a matter of urgency and aim to have the necessary measures in place before any commercial plantings of GM crops are permitted.**

The field trials

27. There has been much publicity surrounding the on-going field trials with GM crops. The purpose of the trials is to answer many of the questions which have been raised about the release of GMOs into the environment. The Minister for the Environment described "the primary objective of the farm-scale evaluations" as being "to study how the management of GM herbicide tolerant maize and oil-seed rape might affect wildlife and biodiversity compared to the management of their non-GM equivalents".[95] The trials are funded by the Government, with the crops grown in accordance with SCIMAC guidelines and the research conducted by a consortium led by the Institute of Terrestrial Ecology, overseen by a steering committee of scientific experts drawn from English Nature, environmental NGOs and academics.[96] They have been opposed by the Soil Association, whose Director spoke for many other organisations and individuals when he told us that "it is our stated policy that we believe that there is no case for open air trial plots because it is a form of treating the countryside like an open-air laboratory and the Government have no means of controlling genetic pollution".[97] Mr Holden objected to "the current parameters of the research" as "largely misdirected ... if you look carefully through the current research objectives of the trial plots, you will find that they are very badly designed and unlikely to lead to any useful outcomes".[98]

28. Professor Alan Gray from the Institute of Terrestrial Ecology defended the trials and his research methods, pointing out that the farms had been chosen to be "representative of commercial practice" and that the sample size was "that considered sufficient to reveal statistically significant differences with an appropriate power".[99] The research is unique: Professor Gray told us that he knew "of no other project anything like as comprehensive as this".[100] On behalf of MAFF, Baroness Hayman described the field trials as "essential to a proper assessment of the implications of the properties of particular GM crops".[101] She explained that "I can envisage a situation where it is perfectly possible to say that a food is safe

[92] e.g. Q 364.
[93] Ev. p. 162.
[94] Q 548.
[95] Ev. p. 164.
[96] *Ibid.*
[97] Q 382.
[98] Q 384.
[99] Ev. p. 169.
[100] *Ibid.*
[101] Q 514.

to market whereas we might not wish it to be grown in this country because of our particular environmental consequences".[102] This is a highly emotive issue and we acknowledge concerns about the field trials but we recognise that the only way in which the necessary research can be conducted is through work in the countryside on a mathematically determined scale. It is impossible to replicate the conditions experienced by outdoor plantings in a laboratory without seriously compromising the results; and we know from inquiries into other issues that it is vital that sufficient trials are completed to ensure the statistical power of the experiment is met. **We recommend that the Government maintain the programme of GM crop field trials as planned, and that all steps are taken to ensure that experiments are not scaled down below the size calculated to produce reliable and scientifically sound results and that they are protected from interference.**

From the farm to the processor

29. The presence of GM material in products processed or sold in the UK is the result of the dependence of the UK food industry on imported soya and maize from the United States. The UK annually imports 1 million tonnes of soyabeans and 1.3 million tonnes of soyabeanmeal[103] which are used in a wide variety of products, ingredients[104] and animal feed. However, this is only a fraction of the total US soya harvest of 75 million tonnes.[105] The size of the US operation has resulted in the development of means of handling crops which have no equivalent in the UK. The supply chain is designed to create economies of scale by bringing together crops from all farms and treating them as a single commodity, with vast storage silos (up to 100,000 tonnes in capacity[106]) and bulk transport systems. Throughout the chain, GM and non-GM crops are commonly intermingled as until very recently there had been no consumer pressure in the US to separate out the 50% of soya crop which comes from GM seeds and no regulatory requirement to do so.[107] Therefore, although most UK food companies "never specified the use of GM ingredients",[108] inevitably their supplies from the US contained GM material.

30. The response of companies dealing in the transport and processing of these commodity crops to the demand for non-GM supplies has been to point to procedures for identity preservation, designed, for example, for soya destined for the Japanese tofu market. Cargill plc and DuPont (UK) Ltd both supplied us with detailed descriptions of how such IP systems work and their implications for the segregation of GM crops.[109] It is a complicated process. Cargill plc had "identified, in the case of the major commodity crops produced in countries such as the United States, that there are something like eight stages in the supply chain where the product goes through a period where it could be co-mingled accidentally with another commodity".[110] Nevertheless, it is possible to supply crops within a set tolerance for GM content. The main difficulties are that, in US terms, the market for non-GM product is a specialised one, which significantly raises the cost of IP measures, and also the timing. Cargill plc told us that "when the GM technology arrived, we, as a company, expected that within five or seven years we would have the opportunity to segregate special traits, which would bring a consumer benefit".[111] Instead, the backlash against GM technology has meant that the industry is trying to make rapid adjustments to its commodity supply chains to isolate non-GM crops to meet customer requirements.

31. It is possible that we have reached a turning point in that there is some evidence that US attitudes are changing towards the supply of non-GM crops. As the Consumers' Association observed, "Initially we were told that [segregation of crops] was impossible to achieve and

[102] Q 511.
[103] Ev. p .29.
[104] See Ev. p. 61.
[105] Ev. p. 29.
[106] Ev. p. 115.
[107] Ev. p. 151.
[108] Ev. p. 115.
[109] Ev. pp. 28-29; 118-120.
[110] Q 150.
[111] Q 154.

therefore unrealistic".[112] Now, with so many European food and retail companies removing GM materials from their products, the market has found a way to meet the customer demands. The Food and Drink Federation reported "an evident increase in ability or preparedness of growers to supply conventional materials",[113] and Marks and Spencer plc replaced all GM ingredients with alternatives or non-GM equivalents in a comparatively short period of time.[114] Non-GM supplies will increase still further if, as appears to be the case, more American farmers turn back to conventional crops. Future GM technology should focus on offering consumer benefits, rather than agricultural ones, and so the emphasis is likely to be on separating out those crops to ensure that the full value is realised. Hence, even within the US commodity system, it is possible that it will be GM crops which require segregation, while conventional crops remain non-GM and make up the bulk of the harvest.

32. For the moment, there is confusion within the industry as to which way the trend will go. From regarding GM as the norm – a great advantage for the farmer and a matter of indifference to the consumer – companies involved in transporting crops are having to rethink their policy. Cargill plc recognised that "the market is in a period of transition from not understanding whether it has a requirement to segregate, to identity preserve, to have non-GM supplies, and fully going to the position of having a non-GM system".[115] As UKASTA pointed out, "non segregation of these products is a result purely and simply of the long established storage and transport structure within the agricultural industries of both North and South America".[116] It was not a refusal to meet consumer demands, nor a point of principle. If it becomes economically attractive to reverse the emphasis of GM crops, that is the way companies will direct their operations. As Friends of the Earth predicted, "we could end up with a GM commodity trade and a non-GM commodity trade and both working alongside each other."[117] It is apparent that already the UK demand for non-GM ingredients can be met when dealing with US imports. When the question arises of UK home-grown supplies, we can expect that the forewarning of the need for clear identification of GM and non-GM crops will ensure that the supply chain will put in place the processes needed to guarantee the status of crops from the farm to the plate.

Animal feed

33. Soya is an important component in animal feed, particularly of pigs and poultry but also of beef,[118] and public attention is now beginning to focus on the entry into the food chain of GM material through this channel. The provision of non-GM animal feed presents similar problems to those outlined above but on a larger scale because of the greater percentage of soya in the diet of farm animals. Cargill plc advised that "the animal feed industry is not at such an advanced stage in wrestling with this issue and finding a solution [as the food industry], in that some of the ingredients in animal feed are not as easily replaced".[119] UKASTA, which represents animal feed manufacturers, believed the industry could cope with the demand for small quantities of either GM or non-GM animal feed: "what would present problems ... would be a widescale move towards a marketplace which was looking for finished products produced in quantity of both GM and non GM streams".[120] That scenario would demand "a significant change in the structure of feed mills".[121]

34. Marks and Spencer plc has introduced a trial range of meat products guaranteed to come from animals fed on non-GM materials.[122] This decision has been welcomed by consumer

[112] Ev. p. 123.
[113] Ev. p. 134.
[114] Ev. p. 56.
[115] Q 151.
[116] Ev. 136.
[117] Q 301.
[118] Ev. p. 115.
[119] Q 141.
[120] Ev. p. 136.
[121] *Ibid.*
[122] Ev. p. 56; Q 346.

groups and by industry representatives such as UKASTA.[123] Novartis told us that it "supports any decision to create a channel for the production of meat and dairy products that are produced without the use of GM crops in animal feed, provided that the supply chain can adequately meet these demands and allow independent verification of this status".[124] Speaking for the Government, Baroness Hayman saw the question of animal feeds as "an issue of consumer information".[125] She argued that "we have to have some common sense about how far back you go, what you label and in what detail you label",[126] but stressed that it was a matter which the UK Government was pursuing within the EU. We accept that, as with GM crops in fields, there are no proven food safety implications in eating products derived from animals fed on GM soya. Nevertheless, **we recommend that the Government press the European Commission for an early consideration of a workable and transparent labelling regime for meat and dairy products derived from animals fed on GM materials and for labelling of the feed itself.**

Costs

35. The extra care involved in segregation and identity preservation is likely to involve additional expenditure, which traditionally has been reflected in the price paid by the consumer. We have had widely varying estimates as to the on-cost for segregation of GM crops within the commodity trade. Novartis spoke of higher costs and "a significant price increase" because of the need for "dedicated silos, dedicated ships and very well cleaned-out trucks".[127] Northern Foods put the cost of dedicating a UK soya mill to non-GM beans at £11 per tonne of beans, most of which additional expenditure would be carried by the end-product lecithin which would work out at £2,200 per tonne of lecithin.[128] On the other hand, DuPont (UK) Ltd calculated that "some legitimate extra costs are incurred due to some loss of flexibility in the supply chain" but these "need not necessarily be excessive".[129] Premiums could be as low as 10-15%, equal to "less than two pence on the price of a whole chicken or less than 1,000th of 1 per cent on the cost of ice cream using lecithin".[130] In general, it was agreed that the costs would be higher in the animal feed industry where there is much greater use of GM product. Cargill plc put the premium here at "something of the order of $25 to $30 on a product whose value is $200".[131]

36. There are several factors which could reduce these on-costs to the consumer. First, there is the degree of tolerance of GM content permitted. The more stringent the requirement, the more expensive the process.[132] Secondly, there is the quantity of the product going through the supply chain in this fashion. Cargill plc pointed out that "if we have a common definition of what is required by the UK industry then we no longer need to talk of premiums and discounts".[133] In other words, if an entire stream is non-GM, there are no additional costs. Thirdly, there is the amount of GM ingredient used in consumer products. Marks and Spencer's experience had shown that "the costs involved with segregation are often irrelevant due to the low rate of inclusion in the final food product".[134] This explains the difference between ice-cream and animal feed in terms of percentage mark-up. Fourth and finally, there is the question of whether any extra cost is passed on to the consumer at all. It is generally assumed by all, including the Minister, that the consumer will bear the costs of segregation.[135] However, this has not been the case so far. The Consumers' Association noted that segregation had been achieved in the food industry "without increasing the price of foods to consumers".[136] It is interesting in this context that Marks and Spencer has chosen to charge a premium for meat from animals

[123] Ev. pp. 124, 136.
[124] Ev. p. 14.
[125] Q 589.
[126] Q 591.
[127] Q 96.
[128] Ev. p. 115.
[129] Ev. p. 120.
[130] *Ibid.*
[131] Q 163.
[132] Ev. p .28.
[133] Q 165.
[134] Ev. p. 60.
[135] Q 498.
[136] Ev. p. 123.

raised on non-GM feed.[137] It is at least possible that if non-GM feed comes to be seen as the norm by purchasers of meat, it will prove difficult to maintain higher retail prices in this area as well. We were grateful for an analysis of the cost implications of segregation prepared by PG Economics which concluded that in the medium term additional costs in both animal feed and other non-GM ingredients may be passed down the supply chain, although the authors accepted that it was "difficult to estimate what level or to what extent this may occur".[138] From all the evidence we have received, **we conclude that segregation of GM and non-GM crops is possible without incurring excessive costs to the consumer.**

Guidelines for the whole chain

37. Any system of identity preservation can only be as reliable as the provision of information along the chain. The SCIMAC guidelines were designed only to address the segregation of GM crops on the farm. Once the crop has passed the farmgate, there is no equivalent bible of regulations to govern its treatment from that point onwards. Several witnesses raised the need for just such a protocol. UKASTA told us it was actively considering how to extend the SCIMAC principles through the marketing and transport of crops, arguing for a 'seamless' operation: "SCIMAC principles start this trend and we feel these must continue through processing and retailing elements if the requirements of consumer information and choice are to be achieved".[139] Further down the food chain, the Food and Drink Federation saw it as "a current priority amongst both manufacturers and retailers to agree a best practice standard for the supply of I-P soya and maize",[140] whilst Marks and Spencer plc urged the need "to establish common standards for effective segregation", especially on tolerances.[141]

38. There are different approaches which could be adopted to this issue. One would be to have "a seamless protocol from 'plough to plate'", as called for by the RICS,[142] presumably overseen by a greatly enlarged SCIMAC-type body to represent all the links in the chain. Another would be a baton-type approach, where each sector passed on information to the next stage but retained its own responsibility for procedures independent of the others. SCIMAC strongly favoured the latter approach, telling us that "we have always regarded it very much as a relay race".[143] It had "continuous dialogue, a continuous exchange of information, with organisations such as the Food and Drink Federation, on the progress of the development of these guidelines and the kind of information that would be presented to them as secondary buyers".[144] However, SCIMAC believed "the bottom line is not to reinvent the wheel but to build on existing systems that work",[145] and it was against extending its own scope beyond the farmgate.

39. Baroness Hayman believed that there was no need for regulation in this area since "a lot of the identity preservation issues throughout the food chain will actually be led by market forces rather than regulatory forces".[146] She doubted that "it would be our responsibility to say the actual process in which someone who makes a claim ensures that it is appropriate".[147] We agree that it is not for the Government to set out statutory requirements in this detail. Nevertheless, **we believe that consumer faith in the transparency and effectiveness of the process would be enhanced by a clear chain of command in the baton-passing method so that it could be seen to be both comprehensive and effective and by the drawing up of a Code of Practice available for public scrutiny. We recommend that the Government encourage and facilitate the establishment of an industry forum to examine the options and adopt whichever can be implemented effectively and comprehensively on an international basis.**

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[137] Q 325.
[138] Ev. p. 134.
[139] Ev. p. 137.
[140] Ev. p. 134.
[141] Ev. p. 56.
[142] Ev. p. 140.
[143] Q 66.
[144] Q 65.
[145] Q 69.
[146] Q 496.
[147] Q 552.

Conclusion

40.We are persuaded that the industry's past experience in producing certified seed and identity preserved crops will help it deliver products of an acceptable GM or non-GM status. There will be further developments in this rapidly changing area in the near future but we believe that the market is responding to the demands of consumers and of farmers to choose whether or not to buy GM materials. The industry has a responsibility to back up its claims by following clearly-formulated procedures which guarantee full traceability and proof of status. However, this is not beyond the reach of existing systems and we would deplore any attempt to charge premiums to consumers for conventional crops. We recognise that some concerns remain, particularly as regards organic foods where standards are much higher and therefore more difficult to meet. While we have accepted the definition of non-GM elsewhere, we acknowledge that the organic sector is working to 100% GM-free insofar as this definition is attainable.

III. IMPLICATIONS FOR CONSUMERS

41. Segregation of GM crops on farms and throughout the food chain is designed to give consumers a choice; but this choice can only be exercised in an informed and meaningful way where consumers are fully aware of what they are buying. The most effective means of conveying this information is through labelling which must be backed up by a system capable of verifying claims and of tracing individual products and ingredients back down the line from the retailer to the farm. Labelling, in effect putting the onus on consumers to take responsibility for their own choices, is often presented as a panacea for the difficulties of highlighting the differences between any two products, whether on food safety or animal welfare; but for a labelling regime to work, there are several criteria which must be met. Novartis provided a useful summary of these factors: "you need the threshold, you need the control, you need certification of the authorities or the companies that do the controls, and you need an appeal procedure".[148] Last and perhaps most importantly, "you need information about the label",[149] that is, clear communication to the consumer of what the label or its absence means. We bear these points in mind in considering the current requirements for labelling in connection with GMOs and amendments to those regulations which are soon to come into force.

The current position

42. The labelling of GM foods is covered by European legislation. Under the EC Novel Foods and Novel Food Ingredients Regulation (258/97) any food would require labelling where there were health or ethical concerns or the food contained a live GMO. This approach was developed in the EC Regulations on the labelling of GM soya and maize (1139/98), which introduced labelling requirements for foods containing ingredients from these two GM crops, approved before the novel food regulation was introduced. Regulation 1139/98 requires foods to be labelled 'genetically modified' if GM material (either DNA or protein) is detectable in the final product. Although it applies only to soya and maize, MAFF advise that Regulation 1139/98 "is seen as setting a precedent for the labelling of all GM foods approved under the novel foods regulations".[150] The 1998 EC Regulation was implemented in the UK through the Food Labelling (Amendment) Regulations 1999 which came into force on 19 March 1999. From September 1999 these Regulations have also applied to food sold in catering establishments.

43. Continuing high levels of concern about GMOs, coupled with recognition of the near impossibility of achieving 100% GM-free ingredients, led to new proposals by the EC in October 1999 to introduce a *de minimis* threshold for the presence of GM material in non-GM foods. Under amendments to Regulation 1139/98 which come into force in April this year, a product containing an ingredient obtained from non-GM sources will only require labelling as GM if the adventitious GM content of that ingredient is more than 1%. It is important to note that the 1%

[148] Q 97.
[149] *Ibid.*
[150] MAFF factsheet *Genetic Modification of Crops and Foods* (available on MAFF's website at http:www.maff.gov.uk/food/novel/leaflet1.htm).

applies to an ingredient, rather than the finished product, and only to ingredients which can be shown to come from non-GM sources. The new amendments also apply the labelling requirements to food destined for the catering market and provide for the establishment of a 'negative list' of ingredients which may be derived from GM soya or maize but which do not contain protein or DNA and will be exempt from the labelling requirements. Finally, proposals to require labelling where GM additives or flavourings are present in foods were also agreed by the Standing Committee for Foodstuffs in October 1999. These labelling requirements have been attacked on several fronts which can usefully be examined under the headings of thresholds, scope, enforcement and clarity.

i) Thresholds

44. The introduction of a 1% *de minimis* threshold for adventitious GM content is the issue which was raised most often in evidence to us. Concern has focussed both on the principle of a threshold and on the agreed target figure. Accepting a *de minimis* level of GM content within non-GM foods is only possible where the principle of tolerance of such content has already been conceded. However, several witnesses expressed reservations about enshrining any threshold in law on the ground that it could discourage suppliers from working to reduce the possibility of GM content. Marks and Spencer plc and the Consumers' Association agreed that "a fixed numerical standard can sometimes act as a disincentive to further improvement once the minimum acceptable level has been achieved".[151] The Local Authorities Co-ordinating Body on Food and Trading Standards (LACOTS), representing those who will be responsible for enforcing the Regulations, argued that the figure should be "adopted only in extreme circumstances and not universally applied as this may undermine strict segregation procedures".[152] The perceived danger is that companies will see the threshold not as a tolerance but as encouragement to allow that amount of GM material into their products.

45. This concern is not alleviated by the figure agreed by the EU. Parts of the supply chain had previously argued that 1% was much too low and that "any figure lower than 2 per cent is unlikely to be consistently deliverable for bulk commodities at reasonable cost".[153] Once 1% had been agreed, the industry accepted its fate, with Novartis expressing itself "fully supportive of the 1 per cent"[154] which was "a vast improvement on a *de facto* zero tolerance level".[155] Others believed the figure to be too high. The Consumers' Association found manufacturers and retailers felt 1% was "reasonable" but they pointed out that many were already working well below this level.[156] A threshold of 0.1 per cent was cited by Friends of the Earth.[157] Finally, Marks and Spencer plc pointed out that the new rules would apply the same threshold to both soya and maize "even though the risks from cross pollination are quite different".[158]

46. A labelling regime which incorporates thresholds for *de minimis* content is dependent upon the accuracy of its testing procedures. It is generally accepted that 1% is technically feasible in terms of detection and that even lower levels are possible. Dr Dale believed "0.1 per cent (one GM seed in 1000 non-GM seeds) [to be] near the limits of routine analytical detection",[159] although Friends of the Earth argued that "with the technology there is we can go right down to 0.001 if we want".[160] However, the main factor in driving down the threshold will be the effectiveness of segregation procedures undertaken by farmers and others in response to consumer pressure. Greater availability of non-GM supplies should also make it easier for food manufacturers to meet more stringent standards.[161] This argues that the threshold should be progressively lowered "to reflect best possible practice, rather than acceptable practice", as

[151] Ev. pp. 59; 123.
[152] Ev. p. 158.
[153] Ev. pp. 122, 133.
[154] Q 110.
[155] Ev. p. 15.
[156] Unprinted evidence from the Consumers' Association.
[157] Q 298.
[158] Ev. p. 59.
[159] Ev. p. 165.
[160] Q 298.
[161] Ev. p. 123.

Nestlé proposed,[162] or eventually phased out altogether. The Government has argued that "the need to provide proof that ingredients are of non-GM origin should ensure that actual levels are kept well below" the threshold of 1%.[163] Nevertheless, it pressed the EU for a review of the threshold in the near future.[164] This was not written into the Regulation itself but the Government succeeded in securing a formal statement that such a review would take place.[165] UKASTA argued in evidence to us that "the market place will be in a position to determine the thresholds which are acceptable to consumers and which may well change over time as consumer perceptions are adapted in line with new information".[166] This appears to imply that consumers are likely to accept a higher threshold for adventitious GM content in non-GM foods. We find this improbable and can more easily foresee a scenario in which the threshold is greatly reduced. **We recommend that the Government continue to support the principle that the threshold for the minimum adventitious presence of GM material in non-GM food should be reduced to the lowest achievable by best practice throughout the industry. The review of the thresholds should allow an opportunity to reconsider whether different standards should apply to different crops.[167] We recommend that the Government put forward proposals to this effect.**

ii) Scope

47. Three concerns were raised with us regarding the scope of the EC regulations, as amended, which need to be considered separately. First, the labelling requirements set out in Regulation 1139/98 refer only to specific varieties of GM soya and maize, leading some witnesses to suggest that they should also apply to other products.[168] We accept that the regulations are intended to set a precedent for all GM foods approved under the EC Novel Foods Regulations but we also understand the concern that it will cause greater legislative confusion if new GM varieties are covered by alternative regulations or additional amendments. Nestlé UK called for the consolidation of all requirements on labelling of GM foods into "one single regulation which should then be applicable to all future approvals of genetically modified crops and their derivatives".[169] **We are attracted to this proposal for a consolidating regulation on labelling of GM foods and recommend that the Government consider how best to pursue this approach with the European Commission.**

48. Secondly, the inclusion of a "negative list" of ingredients that will not require labelling attracted much criticism. This will consist of foods which do not contain protein or DNA in any detectable form even though they are derived from GM crops. Some GM ingredients may therefore be contained in foods which are to all appearances non-GM, thereby potentially misleading consumers. The Consumers in Europe Group had "serious concerns about the concept of a 'negative list' of such food products", highlighting the need for the list to be based on reliable tests and to be amendable in the light of "new tests or new limits of detection in existing tests".[170] Moreover, there is uncertainty as to the content of the list which is under consideration by the EC's Joint Research Centre in Italy.[171] **We acknowledge that, where GM content is undetectable, it would be impractical to require labelling but the significance of the negative list must be fully explained to consumers if the labelling regime is to be effective and transparent.**

49. Thirdly, Nestlé UK argued strongly that the application of the *de minimis* threshold to ingredients and not to finished products "will result in major anomalies".[172] Its evidence pointed out the discrepancy between allowing up to 1% of GM material in a non-GM crop and

[162]Ev. p. 141.
[163]MAFF factsheet, *Genetic Modification of Crops and Foods.*
[164]Q 560.
[165]Unprinted evidence from the Consumers' Association.
[166]Ev. p. 137.
[167]Q 354.
[168]Ev. p. 142.
[169]Ev. pp. 142-3.
[170]Ev. p. 125.
[171]Parliamentary Office of Science and Technology, *GM thresholds for non-GM foods*, POST Note 129, October 1999.
[172]Ev. p. 144.

demanding labelling for "the minutest level of a non-segregated derivative", which would "result in inequitable, illogical and potentially confusing labelling", unhelpful to either manufacturers or consumers.[173] Furthermore, this outcome was compounded by the requirement to label any product which contained an ingredient just above the 1% threshold even where the GM-content of the product in its entirety was well below the limit due to the small proportion used of the ingredient in question.[174] Nestlé UK provided examples of finished foods to illustrate the anomalies.[175] These are complicated matters which require clarification by the Government. **We recognise that this may cause some confusion and believe that the Government should consider how this can be explained to the public. We would welcome either reassurance that such anomalies will not occur or proposals by the Government to the EU on how they might be addressed.**

iii) Enforcement

50. The criticisms detailed so far have centred on points of principle but there are also practical considerations of how the Regulations will be enforced. For example, there is a need for clarification as to how companies will be able to satisfy the enforcement authorities that ingredients came from non-GM sources. The general assumption is that an audit trail will be needed but this is not written into the Regulation,[176] the advice from the Government being only that "it is possible that the use of documented/audited identity preservation systems could satisfy this requirement".[177] This is important also to consumers as it represents their guarantee of the traceability of food ingredients upon which the labelling system is based. A more widespread concern is the testing procedures which will be adopted. Marks and Spencer plc, among others, was concerned at the lack of agreed methods of analysis,[178] while questions were also raised as to the adequacy of testing the final product as the basis of labelling.[179] It is far easier to test unprocessed ingredients for GM content than it is to analyse ready meals or other highly complex finished products. We understand that only one local authority public analyst laboratory in the UK is currently accredited to carry out the DNA tests which would be required.[180]

51. There are two issues here, of information and of establishing standards for testing. On the former, we expect that detailed official advice will be issued by the Government in good time before the Regulations come into force but we are reassured that the difficulties are considerably lessened by the fact that most UK companies already work well within the new requirements. On the latter, Baroness Hayman assured us that "we have an evaluation programme in this country, a proficiency scheme to determine the availability of labs to offer a reliable detection service and to ensure that the required standard is achieved".[181] Looking further afield, she pointed to a series of trials organised by the Joint Research Centre in Italy to establish common standards across Europe.[182] We believe this is a vital step to take if the labelling regime is to achieve its objective. The same high standards of testing and enforcement must apply across the whole of the EU. Otherwise, discrimination will occur and consumers will lose what little confidence they retain that their anxieties about GM are being taken seriously. Witnesses to our inquiry argued the need for harmonisation of EU methods of audit, scientific detection and validation.[183] Baroness Hayman put the contrary view that it was not necessary to prescribe how

[173] *Ibid.*
[174] Ev. p. 145.
[175] *Ibid*; p. 146.
[176] POST Note 129.
[177] Draft Revisions to Guidance Notes on Labelling of Food containing Genetically Modified Soya or Maize, issued by MAFF, 7 January 2000.
[178] Ev. p. 59.
[179] Ev. p. 124.
[180] POST Note 129.
[181] Q 564.
[182] *Ibid.*
[183] Ev. p. 14; Q 166.

testing was carried out, as long as it reached the requisite standard.[184] **We agree, but believe that some assistance may be required to ensure that local authorities are properly equipped to perform their consumer protection role for these products.**

iv) Clarity

52. Our final concerns about the EC regulations are their complexity. Labelling can only work if it is transparent and its meaning is readily and widely understood. We are not convinced that this is the case at present. We have already highlighted examples where non-GM products may contain significant GM ingredients. In some of these cases, it might be more transparent for the products to carry 'GM' labels as this is the information required by the consumer. Similarly, while the regulations are concerned with the labelling of GM foods, many manufacturers and consumers would welcome 'non-GM' labels. The present situation with its exemptions and limits offers much scope for confusion. When questioned on these issues, Baroness Hayman argued that "we cannot cover on labelling physically all the concerns that a wide variety of consumers might have about a food because these are many and various".[185] That is undoubtedly true, but on GMs, the public has expressed concern in sufficient numbers to justify special measures. In the end, it will be the responsibility of the Food Standards Agency, backed up by explanatory materials from retailers, to ensure that consumers understand what the 'GM' labels mean, but the Government should push the EC to decide on criteria for 'non-GM' labels. There is also the question of 'GM-free' which at the moment is covered by a voluntary labelling regime.[186] The Baroness agreed that the EC needs to bring forward proposals on this and that "there has to be a debate ... so we do have a comprehensive definition and one that is testable and assurable".[187] We understand that the EC is close to finalising its proposals on the definition of 'GM-free', although we note that the concept of a definition implies that some tolerance is to be set. **We recommend that the Government work within the EU to establish early definitions of 'non-GM' and 'GM-free' labels to apply throughout the EU which in the case of the latter should be as close to 100% as practicable.**

Conclusion on labelling legislation

53. Even its greatest critic, Nestlé UK, believed that "in principle, the scope of the Novel Food Regulation 258/97 is appropriate as a means of achieving a consistent approach to the approval and labelling of all Novel Foods".[188] We have no reason to dissent from this view, although there are many issues which need to be resolved before the new labelling regime is put into practice. It is, however, disappointing that the EU as a whole is still so far behind commercial practice in the area of GM foods. Several witnesses complained, before the agreement of the latest amendments, that EU legislation was incomplete and creating uncertainty.[189] Meanwhile, the industry, especially in the UK, has taken voluntary steps which have gone much further than those now proposed. From the UK Maize Millers' Association through the retailers to the Consumers' Association, all complained that "European legislation ... is failing to keep pace with market developments and practicalities".[190] Whilst we are reassured that market forces are responding to consumer demands, we believe that it is important that the EU and the UK Government demonstrate awareness of legitimate public concerns.

Availability of products

54. There is another aspect of customer choice which needs to be recognised in connection with the debate on the segregation of GM foods. Labelling can only apply to foods that are offered to the market. In order to have a real choice, customers must have available to them the whole range of clearly identified GM and non-GM products. The public debate around and the backlash against GM technology arose at least partly from the denial of choice as the US

[184] Q 565.
[185] Q 557.
[186] Q 572.
[187] *Ibid.*
[188] Ev. p. 142.
[189] e.g. Ev. p. 59.
[190] Ev. pp. 124, 121; Ev. p. 59.

commodity system delivered co-mingled GM and non-GM soya and maize to the UK market without prior notification or consultation.[191] In the reaction that followed, the one product which had been presented to the public as GM was rejected and withdrawn from sale. The current situation is that a consumer wishing to purchase non-GM products may do so but one wishing to buy GM foodstuffs such as the tomato puree may not. There have been approximately ten GM products approved by the Government's Advisory Committee on Novel Foods and Processes[192] but these have been progressively phased out of retail sales. Of course, companies throughout the food chain have an interest in meeting customer demands where they are so articulately expressed. Cargill plc, for example, explained that "if [customers] tell us that they would want a non-GM food ingredient then that is exactly what we will attempt to provide".[193] Its Managing Director in the UK projected that for the next five years the food industry would "remain where it is ... i.e. that it will not receive GM ingredients" and that "the animal feed industry would follow".[194] This would remain the case "until such time that we see introduced into the market-place GM products which provide a discernible benefit for the consumer".[195] Some believe that at that point consumer demand might lead to a swing back to genetically modified crops becoming the norm. Professor Bainbridge predicted that "in a decade or so you would be able to go to the supermarket and there will be three lines of products", namely conventional containing GM materials, organic and "the identity preserved, the non-GM" which would command the highest premium.[196]

55. Whatever the future, some customers will always want to choose non-GM foods. The Soil Association argued that organic farmers were "doing our best to offer consumers a 100 per cent GM-free choice through the purchase of organic foods",[197] but, as the Consumers in Europe Group contested, "organic food should not be the only alternative to GM foods".[198] At the other end of the scale, some customers now and in the future will want to purchase GM products. Two of the scientists who appeared before our Committee complained that "we have been denied largely the choice of genetically modified crops and food ingredients".[199] This is equally a breach of the principle of consumer choice, albeit one not often aired. The Soil Association believed that "it is incumbent upon the Government to uphold that consumer right of choice".[200] Baroness Hayman commented that "I do not believe it is Government's job to tell people what they should eat or make them buy things that they do not want to buy".[201] Instead, the Government has taken steps to encourage the development of an alternative market in non-GM ingredients, for example by posting on the internet a list of suppliers and distributers of non-GM soya.[202] We agree that this approach is correct. We expect the new Food Standards Agency to monitor the availability of GM and non-GM foods and the relative premiums paid by consumers to ensure that consumers at all price levels have a meaningful choice as to whether to purchase products derived from the new technology. **However, in the end it is the market which will decide on how best to meet consumer demands.**

IV. THE ROLE OF GOVERNMENT

56. The Government's responsibilities in the area of segregation of GM crops stretch from negotiations within the EU on labelling regulations to oversight of GM technology in the UK through a system of advisory committees. Some witnesses suggested other roles such as ensuring the availability of non-GM foods (see above) or working with the industry to develop

[191] Ev. p. 117.
[192] Q 418.
[193] Q 153.
[194] Q 183.
[195] *Ibid.*
[196] Q 445.
[197] Q 367.
[198] Ev. p. 125.
[199] Qq. 186, 455.
[200] Q 358.
[201] Q 475.
[202] Ev. p. 93.

industry-wide standards for products that are not labelled 'GM'.[203] When asked for her definition of the role of Government, Baroness Hayman told us that "I do not think it is our role to be an advocate ... it is our role to be a protector, a protector of public health and a protector of the environment".[204] Beyond this, she defined Government responsibility as "providing informed consumer choice and that takes us into areas not necessarily of regulatory processes but certainly areas such as labelling, whether it is compulsory, or labelling in the sense of monitoring the claims that are made for foods or products and ensuring that they are not deceptive in any way".[205] We have discussed many of these issues in the last section of this Report. In this section, we concentrate on the regulatory system as set up by the Government in response to the heightened public awareness of GMOs.

The regulatory system

57. The process of identifying a GM organism, testing it and ultimately marketing it in the UK is subject to regulatory control at every stage, based on a legislative framework provided by the EU. The Government has several advisory committees, covering different aspects of GM technology. The most important of these to the issues under investigation during our inquiry are the Advisory Committee on Releases to the Environment (ACRE) and the Advisory Committee on Novel Foods and Processes (ACNFP). Looking first at ACRE, the main function of the Committee is "to assess the human and environmental safety of releases or marketing of GMOs and to give advice to the Secretary of State who then decides whether or not a consent is granted in accordance with the Environmental Protection Act 1990".[206] The acting Chairman of ACRE, Professor Gray, explained to us in some detail how the Committee works and the range of expertise found in its membership.[207] Turning to the ACNFP, this Committee, under the chairmanship of Professor Janet Bainbridge, is charged with advising Ministers "on any matters relating to the irradiation of food or to the manufacture of novel foods produced by novel processes having regard where appropriate to the views of relevant expert bodies". Again, a range of views is represented on the Committee.[208] Its Chairman reminded us that its remit covered all novel foods and that while "the public interest is almost exclusively focussed on GM", applications for approval of GM products accounted for "probably something like 20 to 30 per cent of the applications" considered by the Committee.[209] No licences had been granted to market a GM crop in the UK since September 1997.[210]

58. The regulatory system has been looked at in some detail by other select committees and we do not propose to replicate that work here. We confine our observations to two particular issues, namely the number of committees and government departments involved, and public accountability and openness. The first point is perhaps best illustrated by describing the position of the ACNFP. It offers advice to the Department of Health, MAFF, the Scottish Executive, the Welsh Assembly and the Northern Ireland authorities.[211] It currently reports to Baroness Hayman as Food Safety Minister but from 1 April it will report to the Food Standards Agency.[212] In its work, it can call upon the expertise of other Committees, "including the Committee on Toxicity of Chemicals in Foods, Consumer Products and the Environment (COT), the Committee on the Medical Aspects of Foods and Nutritional Policy (COMA), the Advisory Committee on the Microbiological Safety of Food ... ACRE [and] the Food Advisory Committee".[213] There is also a new Advisory Committee on Animal Feedingstuffs (ACAF), and, as a result of the Government's Review of the Advisory and Regulatory Framework for Biotechnology published in May 1999, there are two new "strategic Commissions" – the Human Genetics Commission and the Agriculture and Environment Biotechnology Commission

[203] Ev. p. 124.
[204] Q 468.
[205] *Ibid.*
[206] ACRE Annual Report No. 5: 1998, p. 11.
[207] Q 193.
[208] Q 195; Ev. p. 82.
[209] Q 397.
[210] Q 402.
[211] Ev. p. 82.
[212] Q 469.
[213] Ev. p. 82.

(AEBC). From a Ministerial point of view, the Minister in overall charge of co-ordinating government response on GM issues is Dr Mo Mowlam MP, in the Cabinet Office.[214]

59. With such a complex web of committees and ministers, there is considerable scope for duplication and confusion. Baroness Hayman denied that the division of responsibilities between departments was "incoherent",[215] presenting it rather as "a recognition that GM issues can affect and do affect a variety of government departments".[216] She highlighted the importance of the AEBC's "remit to advise the Government on the 'big picture' on agricultural biotechnology, including questions of ethics and public acceptability".[217] Dr Dale explained that the Commission would "look for gaps, (and look for areas of duplication probably), and, in a sense, stand back from the day-to-day consideration of proposals and be more visionary perhaps".[218] In this way, it is designed to fill the gap perceived by the Consumers in Europe Group for a committee "to look at the wide-ranging impact and ethical issues surrounding the use of genetically modified crops to produce food and the effects that they have on the food chain from farm to consumer".[219] We accept the importance of the AEBC and are therefore somewhat concerned that, to date, it has yet to be established. Baroness Hayman told us in January that a Chairman had yet to be appointed and the position was about to be re-advertised,[220] despite the assurance in MAFF's written evidence that it was expected to start work shortly.[221] She also reminded us that there would be a third body "with overarching responsibilities on GM issues because the Food Standards Agency will have responsibility on GM food".[222] The Consumers in Europe Group had also raised the question of how the new AEBC would "bridge the gap between GM crops and GM foods" in relation to the Food Standards Agency.[223] It is essential that these issues are resolved to ensure that there are no gaps in the system and that responsibilities are clear. **We recommend that the AEBC be established as matter of urgency. We further recommend that the Government clarify responsibilities for examining GM issues within the entire food chain from farm to customer in the light of the establishment of the AEBC and the Food Standards Agency and publish a clear explanation of the regulatory and advisory framework.**

60. One area in which there have been great improvements is the provision of information to the public on GM issues. Taking this a step further, Friends of the Earth felt "very strongly that the public, who are often ignored in these debates, should actively participate in the decision-making process".[224] This could mean putting a representative on the advisory committees, a suggestion on which Baroness Hayman had understandable reservations regarding the difficulties of being a consumer representative.[225] We recognise that it is more important to ensure the provision of information to the public and transparency of the regulatory process. Professor Bainbridge pointed out that "the information is there in the various web sites, in annual reports and things for those people that are prepared to seek it out".[226] Agendas and minutes of meetings are published as well as general information on GM issues, both as press releases and on the internet. Baroness Hayman attributed the reaction against GM food in part to "a lack of understanding and public knowledge of the very detailed work that does go into the regulation of these products".[227] She saw the role of Government as to establish "very open and transparent processes for regulation and scrutiny of new products to ensure that people's confidence is built

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[214] Q 470.
[215] Q 471.
[216] Q 471.
[217] Ev. p. 94.
[218] Q 196.
[219] Ev. p. 124.
[220] Q 480.
[221] Ev. p. 94.
[222] Q 480.
[223] Ev. p. 124.
[224] Q 278.
[225] Q 486.
[226] Q 431.
[227] Q 507.

up again".[228] We agree, and **we expect the Government to ensure similar principles apply in the work of the AEBC and the Food Standards Agency.**

Conclusion

61. It is too early to judge whether the system set up in response to the Government's review of its advisory Committees on GM issues will deliver the coherent, transparent and effective procedures needed in this fraught area. We believe that it has the potential to do so and that gaps in the old structure have been closed by the new strategic commissions and the Food Standards Agency. However, it remains to be seen how this will work in practice and the delay in establishing the AEBC is a bad omen. As regards ministerial responsibilities, we recognise that here too we are in a period of transition before the Food Standards Agency begins its work. This will relieve MAFF of many of its responsibilities towards genetic modification, except for the agricultural implications of GM technology.[229] How far the new division of roles will affect the Government's ability to put out a coherent message on GM technology remains to be seen and is a question to which we and others will doubtless return.

V. CONCLUSIONS AND RECOMMENDATIONS

62. Baroness Hayman told us that, in the context of segregation issues, "there are lots of areas where more work is needed to be done and it is quite detailed, difficult, technical work that then requires quite an input of policy, judgement and proportionality".[230] The Government is "tackling this *seriatim*". Achieved were the labelling of food in restaurants, additives and flavourings, and the 1% threshold. Next on the agenda were the definitions of 'GM-free' and animal feed.[231] This shopping list illustrates the complexities of the implications of segregation issues for consumers. We believe that the bottom line is that the consumer must be able to choose GM or non-GM foods and be certain that they are getting what they are paying for by means of labelling backed up by full traceability. We have received no evidence that genetically modified foods which have passed the approval process present any risk to human health but we recognise that there are reasons of personal and professional choice why consumers might wish not to consume such foods and why farmers might wish to protect their crops from cross-pollination by genetically modified crops. The Government expressed the view in its evidence that "segregation would have been a better way of introducing GM crops onto the UK market".[232] In hindsight, this cannot be doubted but the question is what can be done now to ensure that consumers are given the choice of properly labelled GM, non-GM and GM-free products. Our examination of the issues involved convinces us that the agriculture and food industries can and will deliver these products as a result of market forces. We are not yet convinced that the UK Government or the EU are equally prepared and we urge the Government to take the steps recommended in this Report to improve its record in this area.

63. Our other principal conclusions and recommendations are as follows:

The debate on GM technology

(a) **We believe that it is vital that the confusion over GMs is now replaced by rational debate and education in order that the market can serve those who actively choose to grow or consume genetically modified foods as well as those who choose not to do so (paragraph 1).**

Principles of the Report

(b) **The principles of transparency, inclusiveness, a duty to explain and choice have**

[228] Q 507.
[229] Q 478.
[230] Q 592.
[231] *Ibid.*
[232] Ev. p. 92.

driven our recommendations and we commend them to the Government (paragraph 4).

GM-free and non-GM

(c) **We accept the distinction which has to be made between 'non-GM' and 'GM-free'. There is not yet a satisfactory definition of GM-free but once it has been agreed, we expect it to be enforced (paragraph 9).**

(d) **We recommend that the Government work within the EU to establish early definitions of 'non-GM' and 'GM-free' labels to apply throughout the EU which in the case of the latter should be as close to 100% as practicable (paragraph 52).**

Separation distances

(e) **We recommend that the Government ensure that the separation distances set out in the SCIMAC guidelines be reviewed if there is clear evidence of cross-pollination taking place within the existing guidelines and any necessary revisions implemented in the next round of field trials. If such a review becomes necessary, we would expect all interested parties to be represented on it (paragraph 13).**

SCIMAC guidelines

(f) **We conclude that the SCIMAC guidelines are a practical approach to crop-handling procedures on a particular farm (paragraph 15).**

(g) **We believe that the self-regulatory arrangements need to be clearly endorsed by Government so that they have equivalent status to statutorily based guidelines. However, we also consider that such statutory guidelines should only be imposed if they are part of a uniform arrangement across the EU (paragraph 24).**

(h) **We believe that the SCIMAC guidelines offer a firm basis on which to build in order to segregate GM and non-GM crops in the UK countryside. We have identified areas where improvements are needed but we conclude that an acceptable level of segregation can be achieved without incurring excessive costs (paragraph 25).**

Notification

(i) **We believe that notification should be compulsory, that the notification zone should at least match the separation distances and that SCIMAC must work harder to ensure that the views of neighbouring farmers and other directly interested parties are taken into account in the planting of GM crops (paragraph 19).**

(j) **We believe that we should not give the impression that there is something inherently dangerous about GM crops which warrants rules different from any other circumstance. On balance, we believe that there is a real problem in requiring a public register for one category of crops only. Either a product is safe or it is not safe. If it is safe, it should take its place on an equal footing with other crops (paragraph 19).**

Organic farming

(k) **We welcome the ongoing discussions between SCIMAC and representatives of organic farming as the right approach to the difficulties GMOs present to the organic sector. It would be as wrong for an organic farmer to prevent his**

neighbour growing GM crops as for a farmer planting GM maize to put his neighbour's organic crop, and therefore livelihood, in jeopardy. A *modus vivendi* must be found and written into the guidelines to ensure that the special circumstances of organic farmers are recognised. The two types of farming are equally legal and neither should be subject to discrimination (paragraph 22).

Liability

(l) **We recommend that the Government resolve the issue of legal liability on an EU-wide basis as a matter of urgency and aim to have the necessary measures in place before any commercial plantings of GM crops are permitted (paragraph 26).**

Field trials

(m) **We recommend that the Government maintain the programme of GM crop field trials as planned, and that all steps are taken to ensure that experiments are not scaled down below the size calculated to produce reliable and scientifically sound results and that they are protected from interference (paragraph 28).**

Animal feed

(n) **We recommend that the Government press the European Commission for an early consideration of a workable and transparent labelling regime for meat and dairy products derived from animals fed on GM materials and for labelling of the feed itself (paragraph 34).**

Conclusion on segregation

(o) **We conclude that segregation of GM and non-GM crops is possible without incurring excessive costs to the consumer (paragraph 36).**

(p) **We believe that consumer faith in the transparency and effectiveness of the process would be enhanced by a clear chain of command in the baton-passing method so that it could be seen to be both comprehensive and effective and by the drawing up of a Code of Practice available for public scrutiny. We recommend that the Government encourage and facilitate the establishment of an industry forum to examine the options and adopt whichever can be implemented effectively and comprehensively on an international basis (paragraph 39).**

Labelling and thresholds

(q) **We recommend that the Government continue to support the principle that the threshold for the minimum adventitious presence of GM material in non-GM food should be reduced to the lowest achievable by best practice throughout the industry. The review of the thresholds should allow an opportunity to reconsider whether different standards should apply to different crops. We recommend that the Government put forward proposals to this effect (paragraph 46).**

(r) **We are attracted to the proposal for a consolidating regulation on labelling of GM foods and recommend that the Government consider how best to pursue this approach with the European Commission (paragraph 47).**

(s) **We acknowledge that, where GM content is undetectable, it would be impractical to require labelling but the significance of the negative list must be fully explained to consumers if the labelling regime is to be effective and transparent (paragraph 48).**

(t) **We recognise that the anomalies created by the legislation on GM labelling may cause some confusion and believe that the Government should consider how this can be explained to the public. We would welcome either reassurance that such anomalies will not occur or proposals by the Government to the EU on how they might be addressed (paragraph 49).**

Testing

(u) **We agree with the Government that it is not necessary to prescribe how testing is carried out, as long as it reaches the required standard, but we believe that some assistance may be required to ensure that local authorities are properly equipped to perform their consumer protection role for GM products (paragraph 51).**

Conclusion on the availability of products

(v) **In the end it is the market which will decide on how best to meet consumer demands (paragraph 55).**

Regulatory structures

(w) **We recommend that the Agriculture and Environment Biotechnology Commission be established as matter of urgency (paragraph 59).**

(x) **We recommend that the Government clarify responsibilities for examining GM issues within the entire food chain from farm to customer in the light of the establishment of the AEBC and the Food Standards Agency and publish a clear explanation of the regulatory and advisory framework (paragraph 59).**

(y) **We expect the Government to ensure the principles of openness and transparency apply in the work of the AEBC and the Food Standards Agency (paragraph 60).**

PROCEEDINGS OF THE COMMITTEE RELATING TO THE REPORT

MONDAY 28 FEBRUARY 2000

Members present:

Mr David Curry, in the Chair

Mr David Drew	Mr Lembit Öpik
Mr Michael Jack	Mr Austin Mitchell

The Committee deliberated.

Draft Report [The Segregation of Genetically Modified Foods], proposed by the Chairman, bought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 63 read and agreed to.

Resolved, That the Report be the Third Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That the provisions of Standing Order No. 134 (Select committees (reports)) be applied to the Report.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

[Adjourned till Tuesday 29 February 2000 at Ten o'clock.

LIST OF WITNESSES

LIST OF MEMORANDA INCLUDED IN THE MINUTES OF EVIDENCE

LIST OF APPENDICES TO THE MINUTES OF EVIDENCE

UNPRINTED MEMORANDA

Additional memoranda have been received from the following and have been reported to the House, but to save printing costs they have not been printed and copies have been placed in the House of Commons Library where they may be inspected by Members. Other copies are in the Record Office, House of Lords, and are available to the public for inspection. Requests for inspection should be addressed to the Record Office, House of Lords, London SW1 (Tel 0171 219 3074). Hours of inspection are from 9.30 am to 5.30 pm on Mondays to Fridays.

1. National Farmers' Union (Appendices) (R14)
2. Royal Institution of Chartered Surveyors (Appendices) (R15)
3. Ministry of Agriculture, Fisheries and Food (Annex) (R19)
4. Supply Chain Initiative on Modified Agricultural Crops (Appendices) (R21)
5. Mr Peter Lundgren (R32)
6. Novartis UK Ltd (R40)

AGRICULTURE COMMITTEE REPORTS IN THE CURRENT PARLIAMENT

Session 1997-98

FIRST REPORT, MAFF/Intervention Board Departmental Report 1997, HC 310, published on 16 December 1997.

SECOND REPORT, CAP Reform: Agenda 2000, HC 311-I, published on 25 February 1998.

THIRD REPORT, The UK Beef Industry, HC 474, published on 3 March 1998.

FOURTH REPORT, Food Safety, HC 331, published on 29 April 1998.

FIFTH REPORT, Vitamin B6, HC 753, published on 23 June 1998.

SIXTH REPORT, Flood and Coastal Defence, HC 707, published on 5 August 1998.

SEVENTH REPORT, Vitamin B6: The Government's Decision, HC 1083, published on 4 August 1998.

Session 1998-99

FIRST REPORT, MAFF/Intervention Board Departmental Report 1998 and the Comprehensive Spending Review, HC 125, published on 5 January 1999.

SECOND REPORT, CAP Reform: Rural Development, HC 61, published on 19 January 1999.

THIRD REPORT, The UK Pig Industry, HC 87, published on 1 February 1999.

FOURTH REPORT, UK Pig Industry: The Government's Response, HC 367, published on 6 April 1999.

FIFTH REPORT, Badgers and Bovine Tuberculosis, HC 233, published on 27 April 1999.

SIXTH REPORT, Genetically Modified Organisms, HC 427, published on 15 June 1999.

SEVENTH REPORT, Outcome of the CAP Reform Negotiations, HC 442, published on 29 June 1999.

EIGHTH REPORT, Sea Fishing, HC 141, published on 5 August 1999.

NINTH REPORT, MAFF/Intervention Board Departmental Report 1999, HC 852, published on 28 October 1999.

Session 1999-2000

FIRST REPORT, The Current Crisis in the Livestock Industry, HC 94, published on 14 December 1999.

SECOND REPORT, The Marketing of Milk, HC 36, published on 1 February 2000.

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